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would involve the question of a great Pacific atmospheric whirl, comparable to the supposed general movement during winter about the area of low pressure in the northern Atlantic. It would also involve a comparison of our weather here when we are in the Atlantic whirl with that which comes when the Pacific circulation pushes eastward over the mountains. There are numerous other questions involved in these observations, but they are postponed.

G. H. STONE.

Colorado Springs, Col., June 15.

Consecutive Lightning Flashes.

ABOUT 5.45 P.M. yesterday, while travelling over the "Jersey flats" on the Delaware, Lackawanna, and Western Railroad, I saw toward the south-west no less than six strokes of lightning following the same path — a nearly vertical one — in quick succession. The number was obtained from the grouping or "phrasing," as it were, of the flashes, which impressed itself on my mind. First there was a single flash, then a group of three, and then a group of two. They followed one another so rapidly that their separate character could just be distinguished, and the duration of the six must have been less than a second. I was at first inclined to believe that the paths had been precisely the same, even to the slightest sinuosity, but I am now inclined to think that they varied slightly, and that this variation aided me in recognizing their separate character. I am not aware that so many consecutive strokes have ever been noticed before. It may be interesting to add that this morning's papers report great damage by lightning in Elizabeth, N.J., in the direction of the observed flashes.

ARTHUR E. BOSTWICK.

New York, June 17.

Mocking-Birds and their Young.

AN educated Southern lady made to me the following statement, which seems too extraordinary to be true. My informant honestly considers it a fact. Is it true, or is she deluded by some accident? I leave the matter for those learned in the lore of birds to decide.

My friend says that while living in Mississippi, she frequently took young mocking-birds from a nest near the house, and placed them in a cage hanging on the verandah. The parent birds came, not to feed the young, but to endeavor to liberate them, by plucking at the cage. Failing in this, my friend says that they invariably brought to their imprisoned young bitter-sweet berries, which poisoned them, the birdlings only living a very short time after receiving the berries. She further said that the captives would do well as long as the parent birds were kept from the cage, but if by any inadvertence the cage was left on the verandah while the family went into the house, on returning they would find the bitter-sweet berries in the cage, and the little fledglings in a dying state. My informant further declared that this had occurred again and again within her experience, and that her grandfather gave strict orders that no mocking-birds should be captured, as their death would certainly be effected by the old birds. This is a strange story of bird-ways, that birds should be capable of choosing for their progeny death rather than captivity! I wish some of the Southern readers of *Science* would observe in the mocking-bird direction, and give us positive and recent information from careful experiment.

JULIA MCNAIR WRIGHT.

Fulton, Mo., June 16.

Thunder-Storms.

It has been noticed in connection with thunder-storms in this vicinity this season that in every instance there has been an outflow of air in every direction from the storm, extending even beyond the area of precipitation and cloudiness. For example, in the case of a storm appearing upon the south-western horizon and moving due east, and passing then three or four miles south of this village, the weather-vane pointed directly toward it continuously, veering slowly from south-west to south-east, showing that the wind came steadily from the storm. The same thing also occurred in the case of a storm which appeared upon the north-

western horizon and moved eastward, passing three or four miles north of the village. In this case the vane pointed directly toward the storm throughout, the winds being quite brisk. In other instances in which the storms passed directly over the village the same thing was manifest, the vane shifting sharply from west to east as the storms passed. In previous years I have noticed the puff of wind in front of an advancing thunder-storm moving in the same direction as the storm itself and occurring just before the rain begins to fall, but my attention has never been called to such an outflow of air in every direction as has been apparent in connection with thunder-storms recently. Whatever may be its explanation, it certainly is entirely inconsistent with the idea of an indraught and uprush at the centre of the storms in which it occurs.

M. A. VEEDER.

Lyons, N.Y., June 22.

BOOK-REVIEWS.

The Modalist, or the Laws of Rational Conviction. By EDWARD JOHN HAMILTON. Boston, Ginn. 8°. \$1.40.

THE author of this work claims to have perfected the science of logic. He says in his introductory chapter: "The treatise now offered to the public is the result of long-continued studies which have had for their object to place the doctrines of logic on satisfactory foundations; and it would be false humility were the author to conceal his assurance that these studies have been successful. He claims to have completed a work which Aristotle left unfinished." And again he says, speaking of himself: "He knows what he has been enabled to do; he is certain that he has found the truth on every important point" (pp. 1 and 3).

When we come to examine the improvements that Mr. Hamilton claims to have made in the science, we find that they consist mainly in the introduction of modal syllogisms, that is, syllogisms in which the conclusion is expressed in terms of possibility, probability, or contingency, as distinguished from the ordinary, or pure, syllogism, in which the conclusion is categorical. Such syllogisms were treated of by Aristotle, but modern logicians have rejected them as not properly belonging to the science, since possibility, probability, etc., belong, not to the form of thought, but to its matter. They are properties, not of our thought, but of the facts and events that we think about, and therefore have no proper place in a work on theoretical logic. Mr. Hamilton, however, gives such modal syllogisms the foremost place among the forms of reasoning, affirming that "the pure syllogism is the secondary mode of thought, and should be interpreted by the modal." Yet he immediately adds that the pure syllogism "is the best expression of our ordinary reasonings" (p. 262), an admission which is fatal to his whole theory.

Another of Mr. Hamilton's innovations consists in treating the principle of antecedent and consequent, which lies at the basis of the hypothetical syllogism, as the first principle of all reasoning, even in the ordinary syllogism. Such a turning of logic topsy-turvy as Mr. Hamilton proposes seems to us the reverse of an improvement, and we believe it will be so regarded by thinkers generally.

AMONG THE PUBLISHERS.

AN illustrated article by Edwin Checkley, which introduces some of his new theories of physical culture, forms one of the features of the July *Lippincott*.

— Among its contents the *Chautauquan* for July has the following: "A Symposium — Where Should a College be Located?" by Julius H. Seelye, Henry Wade Rogers, James B. Angell, Hjalmar Hjorth Boyesen, W. R. Harper, and Herbert B. Adams; "Modern Methods of Treating Inebriety," by H. R. Chamberlain; "Objections to College Training for Girls," by Emily F. Wheeler; and "Elizabeth Thompson, the Philanthropist," by Frances E. Willard.

— The publishers of the *Illustrated American* of this city announce a *Monthly Illustrated American*. The monthly has been planned for over a year, and is offered to the public as "the cheapest and best illustrated magazine in the world." It is com-

posed of the magazine element of the weekly. Although the pictures will be, in the main, those employed in the weekly several months ago, there will be new and attractive reading matter. If it were not for this use of the plates the monthly would be an impossibility, the cost of making it being so great. The expense of publishing a weekly magazine of the character of the *Illustrated American* is so heavy that its price must necessarily be higher than the long-established weeklies. This price is the means of deterring many thousands from purchasing it, and in order to give people of small means a magazine at a nominal price it has been decided to issue the monthly at one dollar a year. Those who do not know the *Illustrated American* should ask for it the next time they pass a news-stand.

—G. P. Putnam's Sons have in press "The Living World: Whence it Came, and Whither it is Drifting," a review of the speculations concerning the origin and significance of life, of the facts known in regard to its development, and suggestions as to the direction in which the development is now tending, by H. W. Conn, professor of biology in Wesleyan University.

—A. E. Seaton, who is connected with Earle's Shipbuilding Company of Hull, England, will contribute to *Scribner's* steamship series an article on "Speed in Ocean Steamers," to appear in the July number. Commenting on the probability of "five-day steamers" on the Atlantic the author says: "It is always a question of *cui bono*, and when it is taken into consideration that the

voyage between Sandy Hook and Queenstown is now done in 140 hours, and to do the distance in five days would require a speed of nearly 23½ knots, with an increase in power of sixty-two per cent, and in fuel consumption of thirty-eight per cent, the cry must be regarded as a very far one at present. At the same time it is not desirable to believe that there is now finality in the speed of steamships, although by analogy with railway trains that conclusion might be arrived at."

—Macmillan & Co. have nearly ready for publication "A History of Human Marriage," by Dr. Edward Westermarck, lecturer on sociology at the University of Finland, Helsingfors. In an introductory note the work is commended to the attention of students by Dr. A. R. Wallace, who expresses a high opinion of the learning and insight displayed by the author. Dr. Westermarck differs widely in many respects from the opinions hitherto held by most anthropologists as to the development of the various forms of marriage.

—S. E. Cassino, 196 Summer Street, Boston, announces that the next edition of the "International Scientists' Directory" will be issued in the first half of 1892, two years from the date of publication of the former one. It is hoped that the new edition will contain nearly double the number of addresses given formerly, and the editor will be greatly pleased to receive any names which should be included. The foreign portion will be much more complete than formerly.

Publications received at Editor's Office,
June 17-23.

- HAMILTON, E. J. The Modalist; or, The Laws of Rational Conviction. Boston, Ginn. 331 p. 8°. \$1.40.
IRON Ore District of East Texas, Reports on the, (Texas Geol. Survey). Austin, State. 326 p. 4°. \$1.40.
NEW YORK Agricultural Experiment Station, Ninth Annual Report of, for 1890. Albany, State. 488 p. 8°. \$1.40.
PURIFICATION of Sewage and Water. Experimental Investigations on, by the State Board of Health of Massachusetts. Part II. Boston, State. 910 p. 8°. \$1.40.
WOODHEAD, G. S. Bacteria and their Products (Contemporary Science Series). New York, Scribner. 459 p. 12°. \$1.25.

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—The most prominent article in the *Review of Reviews* for July will be one prepared by Professor Herbert B. Adams of the Johns Hopkins University, entitled "University Extension and its Leaders." It is an account of the popular movement for the dissemination of advanced education among the people, in which the leading educators of America are now earnestly engaged, and it is illustrated with portraits of Professor Adams himself, Bishop Vincent, the head of the Chautauquan movement, Presidents Eliot of Harvard, Dwight of Yale, Adams of Cornell, Gilman of Johns Hopkins, Low of Columbia, Harper of Chicago, Northrop of Minnesota, Mr. Melvil Dewey, Professor E. J. James, and various other gentlemen. It may not be generally known in this country that the public school boards of Paris, London, and other great foreign cities, have finally come to the conclusion that it is necessary to feed, once a day at least, in all the public school buildings, the children of the poorer classes, in order to be sure that they may be in physical condition to receive intellectual instruction.

An article in the same number of the *Review* entitled "Food-Aided Education in Paris, London, and Birmingham," gives an account of the system under which this novel reform has been put into practice.

—An interesting paper on the habits of the moose, by Mr. J. G. Lockhart, appears in the June number of the *Zoologist*. One of the points noted is, that moose generally lie with the tail to windward, trusting to their senses of hearing and smelling, which are remarkably acute, to warn them of approaching danger from that quarter. They can use their eyes to warn them from danger to leeward, where hearing, and especially smelling, would be of little use. While they are sleeping or chewing the cud, their ears are in perpetual motion, one backward, the other forward, alternately. They also have the remarkable insight to make a short turn and sleep below the wind of their fresh track, so that any one falling thereon and following it up is sure to be heard or smelt before he can get within shooting distance.

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